

Effect of Product Innovations on Performance of small and medium manufacturing enterprises in Nairobi County, Kenya

Christopher Kipkemei Ng'etich Yego¹, Dr. Yussuf Kibet², Dr. Jane Sang³, Dr. Joyce Komen⁴

¹Kisii University

²Moi University

³Moi University

³Moi University

¹cyego200@gmail.com

²yusufkibet@yahoo.com

³cjsang@yahoo.com

⁴joycekomen@yahoo.com

ABSTRACT—To effectively contribute to economic development, the Small and Medium Enterprises (SMEs) need to establish and maintain their competitiveness. The purpose of this study is to establish the effect of product innovations on performance of small and medium manufacturing enterprises in Nairobi county, Kenya. The study was anchored in the Resource Based theory and Diffusion Innovation theory. The study used positivism research philosophy and explanatory research design. A representative sample of 254 managers or owner managers was selected from manufacturing SMEs registered under Kenya Association of Manufacturers using stratified random sampling. Structured questionnaire was used to collect the data. The study collected both qualitative and quantitative data. The questionnaire was pre-tested to ensure its validity and reliability. The data collected was tested for the assumptions of various analytical models upon which the most appropriate was selected. Descriptive statistics and inferential statistics were used in analyzing the data. Linear regressions were used to establish the effect of independent variable on dependent variable. A linear regression model was used to explore the relationship between product innovations and firm performance. From the model, the product innovations account for 26.3% ($R^2=0.263$) variation in firm performance. The study findings depicted that there was a positive significant relationship between product innovations and firm performance ($\beta_1=0.419$ and $p<0.05$). The product innovations had a significant effect on firm performance. The study concluded that product innovations have a significant effect on performance of small and medium manufacturing enterprises. For every adoption of product innovation, there was a corresponding increase in performance of small and medium manufacturing enterprises in Nairobi County. The management of small-medium manufacturing enterprises should encourage product

innovation within the industry. It should exercise due diligence in its mandate to protect consumers, but at the same time ensure that its policies do not stifle the growth and creativity.

KEY WORDS:- Product, Innovations, performance, small and medium, manufacturing, enterprises

INTRODUCTION

Firm performance is the outcomes achieved in meeting internal and external goals of a firm (Lin et al., 2008). As a multidimensional construct, performance has several names, including growth (Dobbs and Hamilton, 2006; Wolff and Pett, 2006), survival, success and competitiveness. Adoption of various strategies by firms also determines firm performance. Different firm uses different strategies of performance (Collins and Porras, 2000); hence, a firm's performance is concentrated in its strategy (Short et al., 2007).

Firm performance is defined by Owiti (2014) as the ability of an organization to fulfill its mission through sound management, strong governance and persistent rededication to achieve results. Obiwuro, Okwu, Akpa and Nwakwere (2011) explain firm performance on how an enterprise is doing in terms of level of profit, market share, and product quality in relation to other enterprises in the same industry. Neely (2013) postulates that performance refers concurrently to the action, the action results, and to the triumph of the outcome matched to some standard. Kaplan and Norton (2012) defined performance, therefore as a set of factors that describe the procedure by which countless outcomes and results are attained.

The importance of firm performance can be seen from theoretical, empirical and managerial lenses (Venkatraman and Ramanujam, 2016). The theoretical lens focuses on the effectiveness of strategies that influence the level of performance they cause while the practical lens brings to light the various constructs that have been utilized to capture performance (Mintzberg and Lampel, 2009). The managerial perspective focuses on the quality of the day-to-day decisions made by managers (Venkatraman and Ramanujam, 2016). Irrespective of this importance, the research outcomes on performance stay inconclusive, and several reasons have been advanced for the indecisive results including methodological defects, snubbing organizational characteristics in performance relationships and related application of models (Mugambi and K'Obonyo, 2017).

Measuring performance is one of the utmost problematic issues in the study of strategic management. The performance of SME's in

the manufacturing sector is still dismally low. The manufacturing value added contribution made by MSEs increased, though the contribution was still low, accounting for 14.2 per cent yet two thirds (67%) of manufacturing firms are micro and small enterprises (KIPPR, 2013). This dismal performance is likely to slow down the path of economic development as envisioned by vision 2030 strategic plan which encourages adoption of innovation practices.

Innovation practices are fundamental instruments of growth strategies to enter new markets, increase the existing market share and provide a company with a competitive edge (Walter 2015; Alex 2014). Innovation is the introduction to the market of a new product/service that is new or significantly improved with respect to its characteristics or intended uses (Moses et al, 2012). There are four broad levels of novelty of innovations that are defined in relation to the firm and the market levels: innovations that are new only to the firm; innovations that are new to the market of the firm and its competitors; innovations that are new to the country and innovations that are a world first (Moses et al, 2012).

In the United States (US) and the European Union (EU) member states there was a decline in innovations from 1,592,420 in 2008 to 1,152,211 in 2009, a decrease of 28 % (ICU, 2011). The ability to pursue innovation practices is increasingly viewed as the single most important factor in developing and sustaining competitive advantage. It is no longer adequate to do things better, it is about doing new and better things (Dobin, Mark & Nelson, 2015).

In China, every year organizations spend millions of dollars in research and development activities due to the fact that the reputation of those organizations is inexorably associated with innovation practices (Henard&Dacin, 2010). A study by Calvo, (2011) stated that more than half of product innovative firms in Spanish manufacturing firms did not expend in research and development. A Survey by the Community Innovation Survey (CIS), covering European Union (EU) and European Free Trade Association (EFTA) member states, reported that, the share of innovative enterprises decreased by 3.9% during the period 2010-2012 among the EU member states.

The highest shares of innovative enterprises during the period 2010-2012 was Germany (66.9%), Luxembourg (66.1%), Ireland (58.7%) and Italy (56.1%) and this was a decline from the previous period (CIS,2012). Although there is availability of innovation literature, most innovation research ignores SMMEs and only focuses on large firms (Sung, Kim & Choi, 2015; Walter, 2015). Rosli (2015) one of the authorities in innovation research stated that not to innovate is to die. On the downside, small firms have limited resources for innovation initiatives (Mohd, Zuhriah&Norsian, 2014; Alex, 2014). In Kenya, only a few firms have introduced innovations that are new to the Kenyan market. In the Kenyan manufacturing sector only a third of firms have developed their own innovations (Gichana, Elegwa&Romanus, 2013; Mwangi&Namusonge, 2014).

A product innovation can be recognized easily by stakeholders of a firm. It usually requires continuous research and development to

be competitive in the market. According to Oslo Manual (OECD, 2005), a product innovation is the introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses. This includes significant improvements in technical specifications, components and materials, incorporated software, user friendliness or other functional characteristics. It highlights that product innovation can utilise new technologies and knowledge. It may be based on new uses or combinations of existing technologies and knowledge.

A product innovation is the introduction of new goods and services and significant improvements in the functional or user characteristics of existing goods and services (OECD, 2005). Günay (2007) states that a new product can be developed by combining current technologies and using them differently or using radical technologies. Deming (1996) believes that firms have to understand customer needs and expectations, design products and services to create better lives to them to survive in the long term. Bish (2006) believes that a product innovation may be in two dimensions namely new products and new innovations in current products. Tübitak (2006) acknowledges that there is a relationship between product innovation and technology. It (2006) adds that technology makes contribution to increase production level, product characteristics, product value and decrease product costs (Günay, 2007).

According to Hult et al. (2004), product innovation offers a potential protection to a firm from market threats and competitors. Bayus et al. (2003) proved that product innovation had positive and significant link with organizational performance. Using a total number of 744 Spanish-firm samples, Espallardo and Ballester (2009) confirmed a positive impact of innovation on firm performance. Similarly, Alegre et al. (2006) found that both product innovation dimensions (efficacy and efficiency) were strongly and positively related to firm performance. The introduction of novel product is positively associated with firm performance was also confirmed by Varis and Littunen (2010).

Polder et al. (2010) believe that a product innovation is introducing new products or making significant improvements in the current products. They add that firms make product innovation to create efficiency. The product innovation has the following dimensions; the product should be new to customers from the perspective of the customer, the product should be new to the firm from the perspective of the firm, product modification means making product variation in the current products of the firm. A new product development and product innovation is an important strategy to increase market share and performance of a firm. They add that several studies reveal that new product development has a positive impact on firm performance (Ul Hassan et al., 2013). Adner and Levinthal (2001) claim that the purpose of the product innovation is to attract new customers. They (2001) add that firms launch new products or modify current products based on customer needs.

Small and Medium Manufacturing Enterprises (SMME's) play a crucial role in driving economic growth in both developing and

developed economies (Asieh, 2015; Wanjau, 2010). Their importance is not limited to adding value but also creates jobs and drives the innovation for long-term sustainable growth. According to UNIDO (2013) the manufacturing SME's were struggling to grow as a result of the global financial crisis of the year 2009 and this resulted in developing countries being the main engine in the growth of the global manufacturing.

In the United States SME's represent an overwhelming majority of businesses and account for almost half of the GDP (Kiprem, Peng & Pollard, 2011). The United States Small Business Administration (2012) reported that SMME's created two-thirds of all new jobs and invested more than half of all technological and innovation products. Similarly in Thailand, the largest number of businesses was comprised of SMME's. A study by Ahu (2015) suggested that the catalytic roles of SMME's and cottage businesses had been displayed in many economies of the world such as Japan, South Korea, Malaysia, Zambia and India among others.

According to Klynveld Peat Goerelder (KPMG) International 2015, China's growth in its GDP slowed down from the year 2013-2014 to stand at 74% partly due to the challenging environment in the manufacturing sector. The manufacturing sector in South Africa contributed significantly to its economy but its importance declined from 19% in 1993 to 17% in 2012. The contribution to GDP was 13.9% lower than that of the service sector which stood at 73% (Tarboda, 2015). The newly industrialized countries such as South Korea, Malaysia and Taiwan experienced development and economic growth because they accorded SMEs the right conditions to flourish (Nafukho, Machuma & Muyia, 2009).

The East African Community (EAC) is one of the regional integration bodies which comprise of Kenya, Uganda, Tanzania, Rwanda and Burundi (EAC, 2010). It has led to the expansion of market for manufacturing firms, and influence on performance of manufacturing firms. Regional integration presents a challenge to firms accustomed to operating within the domestic market. The challenges were in form of increased number of competing firms, lower production and marketing costs, larger market and greater pressure on firms to regionalize (Wiklund & Shepherd, 2005).

Regionally, Tanzania's manufacturing SMEs continued to lag behind than those of the other countries in the region in terms of quantity and quality of the industrial goods that were produced and exported due to its reliance on agricultural sector. In Uganda SMMEs have been struggling and experienced a slow growth below the Sub-Saharan Average (ROU, 2010). The sector's contribution to the Uganda's GDP lagged behind than that of the other countries such as Kenya, Rwanda and Burundi (KIPPRA, 2014).

In Kenya, Economic Recovery Strategy (ERS) estimated that 500,000 jobs would be created annually with 88% of those generated by SMES (KIPPRA, 2014). Christian and Alexander (2013) observed that SMMEs generated new jobs in the economy and new products and services that facilitated economic growth.

The economic impact of SMME's can be measured by their contribution to output, innovations, employment, income investments, exports and their economic indicators (Jochen, 2014). In Kenya SMME's employ 74% of the labour force and contribute over 18% of the country's GDP. In addition, more than 90% of business comes from this sector and this makes up 30% of total employments (Ndalira, 2013).

The Kenyan Vision 2030 (RoK, 2008) envisaged a vibrant manufacturing sector as one of the key sectors meant to make the economy industrialize by the year 2030. However, the manufacturing sector has recorded poor performance in the past contributing a dismal 14.2% to the country's value addition (Kippra, 2013). This phenomenon not only paints a gloomy picture of the sector, as one of the key pillars of economic growth, but also threatens to slow down the realization of vision 2030 dream. The manufacturing SME firms outperformed large industries in terms of growth and job creation (Kippra, 2013). The manufacturing sector's contribution to Gross Domestic Product (GDP) was 10% in 2014 (RoK, 2015). However, the Kenya vision 2030 stipulates that the sector should account for 20% of GDP (RoK 2008). These manufacturing SME's in the country are likely to perform even better when they fully embrace and get committed to their innovation practices.

Spanos (2012) conducted a study dubbed antecedents of SMEs' product innovation performance: a configurational perspective. The study examined antecedents of product innovation performance in small and medium-sized enterprises (SMEs). The study was based on the resource-based theory. The study argued that because innovation is a complex and highly demanding activity, the capacity to innovate should be viewed as a configuration of tightly coupled functional and administrative competencies that together, not in isolation, explain product innovation. Ibrahim (2016) conducted a study on product innovation in Islamic banking and growth of SMEs in Nairobi. The study adopted an exploratory research design, the target Population was all banks in Kenya that offer Islamic products. The study findings indicated that there was positive and significant relationship between product innovation in Islamic bank and the growth of SMEs in Nairobi.

PRODUCT INNOVATION ON FIRM PERFORMANCE

Firms that offer products that are adapted to the needs and want of target customers and that market them faster and more efficiently than their competitors are in a better position to create a sustainable competitive advantage (Wang et al, 2003). Competitive advantage is increasingly derived from knowledge and technological skills and experience in the creation of new products. In Ghana, OseiYunfei, Appienti and Forkuoh (2016) conducted a study to establish the relationship between Product Innovation and SMEs Performance in the Manufacturing Sector of

Ghana. The aim of the study was to establish the contribution of product innovation to the performance and growth of SMEs in Ghana. The study adopted quantitative approach using survey techniques to gather data from 400 SME owner managers in Ghana. The study results indicated that SMEs in the cities and with educated entrepreneurs were adopting product innovation at the expense of those in the rural areas.

A study supported the previously held view by Lau, Tang and Yam (2010) that product innovation leads to improvement of firm's performance. The results of the study fitted very well the Ansoff Growth Model quadrant, where the introduction of new product and the improvement of existing ones were the center stage for SMEs growth both in the short and long run. The study concluded that, SMEs in Ghana who adopted product innovative practices recorded a significant growth in terms of the annual turnover and the number of employees. It was further concluded that the survival of SMEs in Ghana hinges on the adoption of innovative practices if they are to compete fairly with their larger counterparts and overseas competitors.

Wadho and Chaudhry (2018) conducted a study on Innovation and firm performance in developing countries: The case of Pakistani textile and apparel manufacturers. Using unique innovation survey data collected from a homogenous sample of firms in Pakistan, the study presented an analysis of the firm level determinants of product innovation and its impact on firm performance. The study employed a multi-stage structural model linking the decision of a firm to innovate, its innovation investment, product innovation, and firm performance using primary data from the textile and wearing apparel sector, which is the largest export sector of Pakistan. The study results indicated that, product innovation leads to increased labor productivity as well as higher labor productivity growth.

Antonnet (2014) evaluated the effects of product innovation on financial performance of commercial banks in Kenya. The study was concerned with product innovation and its effects on financial performance of commercial banks in Kenya. The study adopted explanatory research design in which a population sample of 106 senior and branch managers from nine commercial banks was taken using the census method. Analyses were conducted through descriptive statistics and Ordinary Least Square technique to estimate a multiple regression equation. The regression results indicated that core product innovation and augmented product innovation did not have any relationship with the financial performance of banks.

THEORETICAL REVIEW

According to Aguilar (2009), a theoretical framework guides research, determining what variables to measure, and what statistical relationships to look for in the context of the problems under study. Thus, the theoretical literature helps the researcher see clearly the variables of the study; provides a general framework for data analysis; and helps in the selection of applicable research design. The theory reviewed and which inform

the study is, the resource-based theory and diffusion innovation theory.

RESOURCE BASED THEORY

An outstanding theory in innovation and competitiveness studies is the Resource Based theory originally put forward Penrose (Penrose, 1959), but developed by others (Wernerfelt, 1984, Barney, 2002; Teece, et al., 1997). The theory argues that firms own resources which they can employ to become competitive. The theory posits that a firm can gain competitive advantage by being in possession of distinctive resources or capabilities which are valuable, difficult to imitate and rare in the marketplace (Baark et al., 2011). Proponents of this view argue that organizations need to utilize internal sources of competitiveness as opposed to external sources (Barney, 1995; Barney 2002; Teece et al., 1997). According to RBV proponents, it is much more feasible to exploit external opportunities using existing resources in a new way rather than trying to acquire new skills for each different opportunity. Firm resources and processes are important to firms since they influence its behaviour and activities. A resource is an asset, competency, organizational processes, information, knowledge or capability and is considered to be unique if it is valuable, rare, difficult to imitate and has no close substitute (Barney, 2002). It is the distinctive resources that lead to sustained competitiveness and superior returns in firms (Wernerfelt, 1984; Barney, 2002; Teece et al., 1997).

A firm is considered as a coordinated bundle of resources which can be exploited for sustainable competitive advantage by the firm (Barney, 1995).

Firm resources are assets connected semi-permanently to it and include human, social, technological, knowledge, physical and financial (Barney, 2002). Firms with valuable resources that are rare and not easily copied, achieve a sustainable competitive advantage in form of innovative new products (Trott, 2008). Organizational resources positively affect the innovation process by providing the inputs that are combined and transformed to produce innovations which lead to firm competitiveness (Trott, 2008). Innovation provides means to competitive advantage of the firm by providing outputs that are valuable, rare, and hard to imitate (OECD, 2009).

Financial resources are among the most important bundle of resources for a firm that can be used to support innovative activities especially R & D. Likewise human capital is a key determinant of firm performance and competitiveness (Barney, 1995). Another key resource for firm's competitiveness is the knowledge-based resources. Knowledge facilitates the discovery of ideas and exploitation of opportunities for innovation. It is therefore useful for the manipulation, transformation and the development of the other resources for competitiveness (Wiklund & Shepherd, 2003; Lee & Sukuco, 2007; Wang, He, & Mahoney, 2009). This theory informs the study of another factor of competitiveness as firm resources that affect a firm's activities including innovation. Firm resources influence a firm's behaviour

and this includes how it competes in the market. Resources that are unique, distinct, rare and hard to imitate give a firm a competitive edge.

DIFFUSION INNOVATION THEORY

Diffusion of innovation theory was developed by (Rogers, 1971) and examines how ideas are spread among groups of people. Diffusion of innovations theory seeks to explain how, why, and at what rate new ideas and technology spread. Rogers (2003), argues that diffusion is the process by which an innovation is communicated over time among the participants in a social system. For Rogers (2003), adoption is a decision of “full use of an innovation as the best course of action available” and rejection is a decision “not to adopt an innovation”.

Rogers (2003), defines diffusion as “the process in which an innovation is communicated through certain channels over time among the members of a social system”. As expressed in this definition, innovation, communication channels, time, and social system are the four key components of the diffusion of innovations. Diffusion goes beyond the two-step flow theory, centering on the conditions that increase or decrease the likelihood that an innovation, a new idea, product or practice, was adopted by members of a given culture. In multi-step diffusion, the opinion leader still exerts a large influence on the behavior of individuals, called adopters, but there are also other intermediaries between the media and the audience's decision-making.

One intermediary is the change agent, someone who encourages an opinion leader to adopt or reject an innovation (Infante, Rancer, & Womack, 1997). Not all individuals adopt innovations in a social system at the same time. Instead, they tend to adopt in a time sequence, and can be classified into adopter categories based upon how long it takes them to begin using the new idea. Practically speaking, it's very useful for a change agent to be able to identify which category certain individuals belong to, since the short-term goal of most change agents is to facilitate the adoption of an innovation. Adoption of a new idea is caused by human interaction through interpersonal networks. If the initial adopter of an innovation discusses it with two members of a given social system, and these two become adopters who pass the innovation along to two peers, and so on, the resulting distribution follows a binomial expansion. Diffusion goes beyond the two-step flow theory centering on the conditions that increase or decrease the likelihood that members of a given society adopt an innovation, a new idea, product or practice.

RESEARCH METHODOLOGY

The study opted for the positivistic approach because the study was objective, the researcher was independent and results of the study may not be shaped by the opinions of the researcher so as to find the exact situations of the determinants of innovations practices on the performance manufacturing SME's in Kenya. The study emphasized quantifiable figures in a regression model to back up the findings. Positivistic research was appropriate since it

is generally based on numbers and mathematical equations which are difficult to alter because it used the quantitative methodology to collect primary data. The study used this paradigm because it seeks to exclude the researcher's personal opinions from the research. The paradigm encourages the use of quantifiable figures to justify the claims.

A research design is a framework for data collection and analysis to answer a study's research questions (Bryman & Bell, 2011). The current study used explanatory; finding out what is happening and also sought new insights (Robson, 2002) into relationships that existed between research variables. The explanatory research design allowed the use of inferential statistics to determine variable relationships (Hair et al., 2006).

The study was conducted in Nairobi County, Kenya and focused on manufacturing SME's. The sector contributes two thirds of the country's industrial sector and 10% of the country's GDP. It provided a market for most of the country 's agricultural sector output.

The target population for this study was SME's registered with the Kenya Association of Manufacturers (KAM, 2017). There are seven hundred and fifty-two (752) manufacturing firms registered with KAM as at June 2017. The sector contributes on average 10% of the national gross domestic product and employs over 2 million people. Among stakeholders are local and international buyers, investors and the Government of Kenya. The target respondents consisted of the Owners/ managers of the targeted manufacturing SME's.

A sampling frame is a list of elements from which the sample is actually drawn (Cooper & Schindler, 2011). The sample frame for this study was KAM directory 2017 for manufacturing SMEs registered with Kenya Association of Manufacturers. The Kenya Association of Manufacturers differentiated the firms in terms of size. KIPPR (2013) posited that the SME sector constituted 70% of all the manufacturing firms in Kenya.

Stratified random sampling with a proportional allocation of each stratum was used to obtain a representative sample in this study. In random sampling, each item in the population has a probability of selection same as any other item in the population. Stratified random sampling is used for data which is heterogeneous. The population is divided into sub-groups with common characteristics and the representatives from each sub-group are to be part of the sample (Zukmund, 2012)

Gall and Borg (2012) posited that at least 30% of the population is adequate to form the sample size. Hill (2012) suggested that at least 10% sample size of the population is adequate for a research study, while for a small population, 20% constitute a sample. The sample for this study was determined using the sample table developed by Krejcie and Morgan in 1970. The population for this study was between 700 and 800 and therefore the sample size at 95% confidence level was $(248+260)/2=254$ representing 34% of the population which was based on the following Krejcie and Morgan. The simple random stratified sampling is represented in the Table 1.

Table 1: The Sample Size

Sector	Population	Sample size (Unit of analysis)	Manager/Owners (Unit of observation)
Chemical & Allied	79	27	27
Energy, Electricals & Electronics	45	15	15
Fresh Produce	11	4	4
Food & Beverages	187	63	63
Leather & Footwear	9	3	3
Metal & Allied	83	28	28
Motor Vehicle & Accessories	51	17	17
Paper & Board	74	25	25
Pharmaceuticals & Medical Equipment	24	8	8
Plastics & Rubber	77	26	26
Textile & Apparels	64	22	22
Timber, Wood & Furniture	19	6	6
Building, Construction & Mining	29	10	10
Total	752	254	254

The primary data was obtained by administering a questionnaire to the respondents. This study used structured questionnaire to collect primary data. Questionnaires consisted of a series of specific, short questions that was asked verbally by the interviewer or answered by the respondents on their own (Cooper & Schindler, 2011).

Before carrying out a survey, all aspects of the questionnaire as a survey instrument undergone a pilot test (Malhotra et al, 2010). The number in the pilot study was 10% of the sample size (Bryman, 2012), and therefore the study used 25 respondents for the pilot study. The pilot study was conducted in registered SMME's in UasinGishu County.

Reliability is the extent to which a given measuring instrument produces the same result each time it is used (Abbot & McKinney,

2013). This study adopted internal consistency method as it was more stable than the other methods (Bryman, 2012; Cooper & Schindler, 2011). Internal consistency was tested using the Cronbachs alpha statistic. Pallant (2010) advised that where Cronbach 's alpha coefficient is used for reliability test, the value should be above 0.7.

Validity is the degree to which results obtained from the analysis of the data actually represent the phenomenon under study (Zikmund 2012). This study adopted a construct validity. There are four types of validity; internal validity, statistical conclusion validity, constructs validity and external validity (Drost, 2011). A study by Drost (2011) stated that there are two ways of assessing content validity, through asking a number of questions about the instruments or test and asking the opinion of expert judges in the field.

Data processing entailed editing, classification and tabulation of data collected so that they were subjected to analysis (Kothari, 2010). Coding and classification were done for efficient analysis of the data. Data entry converted the information gathered by primary method to a medium for viewing and manipulation. The use of closed-end and open-end questionnaires contributed towards gathering of both quantitative and qualitative data. Descriptive statistics method was applied to analyze quantitative data where data was scored by calculating the frequencies and percentages. This was done using Statistical Package for Social Sciences (SPSS) computer software version 26.0. SPSS also assisted in producing frequency tables for descriptive analysis. Inferential statistics was applied through correlation analysis and the use of regression analysis.

Ethical issues were adhered to during the research study. The researcher obtained an introductory letter from Moi University to conduct research. The researcher assured the respondents of confidentiality over information to be provided in the instruments as it was for academic purpose only and all cited work was dully acknowledged. These measures enhanced the willingness and objectivity of the respondents. The data to be collected was stored, arranged in a manner that were not disclose the entity of the respondents.

Results

DESCRIPTIVE STATISTICS FOR FIRM PERFORMANCE

The dependent variable in this study was performance of small and medium manufacturing enterprises. The study sought to identify respondent's views on performance of small and medium manufacturing enterprises. A total of 6 statements were used to determine the performance of small and medium manufacturing enterprises and their responses elicited on a 5-point likert scale, shown in Table 2. From the findings that all the statements representing performance of small and medium manufacturing enterprises had a mean of above 3.25. This showed that the

respondents rated the performance of small and medium manufacturing enterprises was average.

The overall skewness was -0.720 and kurtosis was 0.783, indicating that the distribution of values deviates from the mean. From the 6 statements used to explain firm performance had an overall mean score of 3.31 and a standard deviation of 0.701, indicating that respondents agreed on performance of small and medium manufacturing enterprises. This implies that performance of small and medium manufacturing enterprises was rated average among the respondents.

Table 2 Descriptive statistics of Firm performance

Variable	Mean	Std. Deviation	Skewness	Kurtosis
FP1	3.32	1.086	-.246	-.694
FP2	3.38	1.147	-.209	-.562
FP3	3.25	.815	.072	.060
FP4	3.30	.968	-.338	.060
FP5	3.29	.899	-.265	-.344
FP6	3.31	.847	-.521	.579
Mean	3.3081	.70105	-.720	.783

DESCRIPTIVE STATISTICS FOR PRODUCT INNOVATION

The study sought the respondent's views on product innovation in small and medium manufacturing enterprises using 6 statements and their responses elicited on a 5-point likert scale, shown in Table 3. From the findings that all the statements representing product innovation had a mean of above 3.3. This showed that the respondents rated product innovation in small and medium manufacturing enterprises was high. The overall skewness was -0.45 and kurtosis was -0.663, indicating that the distribution of values deviates from the mean. From the 6 statements used to explain product innovation had an overall mean score of 3.57 and a standard deviation of 0.858, indicating that respondents agreed in product innovation small and medium manufacturing enterprises. This implies that product innovation in small and medium manufacturing enterprises was rated highly among the respondents.

Table 3 Descriptive Statistics for Product innovation

Variable	Mean	Std. Deviation	Skewness	Kurtosis
FP1	3.60	1.208	-.529	-.694
FP2	3.26	1.045	-.455	-.436
FP3	3.53	1.177	-.384	-.817
FP4	3.54	.999	.010	-.754
FP5	3.63	1.028	-.426	-.344
FP6	3.85	1.121	-.652	-.699
Mean	3.5683	.85794	-.450	-.663

H01: PRODUCT INNOVATION HAS NO SIGNIFICANT EFFECT ON PERFORMANCE OF SMALL AND MEDIUM

MANUFACTURING ENTERPRISES IN NAIROBI COUNTY.

Linear regression is an approach to modeling the relationship between independent and dependent variable. The regression coefficient summary was used to explain the nature of the relationship between the dependent and independent variables. **Hypothesis H₀₁**; proposed that product innovations have no significant effect on performance of small and medium manufacturing enterprises in Nairobi County. To test this hypothesis, product innovations variable was regressed on the firm performance variable. The decision rule for this test was to; reject **H₀₁** if $p < 0.05$, or do not reject if otherwise $p > 0.05$. A linear regression model was used to explore the relationship between product innovations and firm performance.

From the model, (Table 4) shows that product innovations account for ($R^2 = .263$), 26.3% variation in firm performance. Therefore, the product innovations predictor used in the model captured the variation in the firm performance. The model summary results confirmed that variation in product innovations actually explained 26% (Adjusted R-square = .260) of the performance of small and medium manufacturing enterprises in Kenya.

Table 4. Model Summary on Product innovations and firm performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.513 ^a	.263	.260	.60294

a. Predictors: (Constant), Product

b. Dependent Variable: Performance

ANOVA OF PRODUCT INNOVATIONS AND FIRM PERFORMANCE

The analysis of variance results on table 5 further confirms that the conceptualized regression model for product innovations and firm performance was statistically valid. The regression coefficient was definitely not zero ($F_{1, 242} = 86.52$, $p < 0.05$). This shows that there is a significant influence of product innovations and firm performance.

Table 5: ANOVA of Product innovations and firm performance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	31.453	1	31.453	86.520	.000 ^b
	Residual	87.975	242	.364		
	Total	119.427	243			

a. Dependent Variable: Performance

b. Predictors: (Constant), Product

PRODUCT INNOVATIONS AND FIRM PERFORMANCE COEFFICIENTS

The β coefficient for product innovations as independent variable was generated from the model, in order to test the hypotheses under study. The t-test was used to identify whether the product innovations as predictor was making a significant contribution to the model. Table 6 shows the estimates of β -value and gives contribution of the predictor to the model.

Table 6 Product innovations and firm performance Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
1	(Constant)	1.812	.165		10.951	.000
	Product	.419	.045	.513	9.302	.000

a. Dependent Variable: Performance

From the findings, the t-test associated with β -values was significant and the product innovations as the predictor was making a significant contribution to the model. The β -value for product innovations had a positive coefficient, depicting positive relationship with firm performance as summarized in the model as:

$$Y = 1.812 + 0.419X + \varepsilon \dots\dots\dots$$

Equation 4.1

Where: Y = Firm performance, X = Product innovations, ε = error term

The study hypothesized that there is no significant relationship between product innovations on firm performance. The study findings depicted that there was a positive significant relationship between product innovations and firm performance ($\beta_1 = 0.419$ and $p < 0.05$). Therefore, a rise in product innovations led to an increase in firm performance. Since the p value was less than 0.05 the null hypothesis (H_{01}) was rejected. Therefore, concludes that product innovations had a significant influence on firm performance.

This implies that for every increase in the product innovations, there was a corresponding improvement in firm performance. This agrees with OseiYunfei, Appienti and Forkuoh (2016) that SMEs in the cities and with educated entrepreneurs were adopting product innovation at the expense of those in the rural areas. Also concurs with Lau, Tang and Yam (2010) that product innovation leads to improvement of firm's performance. It agrees with Wadho and Chaudhry (2018) that, product innovation leads to increased labor productivity as well as higher labor productivity growth. Ongwen (2015) that product innovations positively affect financial performance.

CONCLUSION

The study concluded that product innovations have a significant effect on performance of small and medium manufacturing enterprises. For every adoption of product innovation, there was a corresponding increase in performance of small and medium manufacturing enterprises in Nairobi County.

RECOMMENDATIONS

The management of small-medium manufacturing enterprises should encourage product innovation within the industry. It should exercise due diligence in its mandate to protect consumers, but at the same time ensure that its policies do not stifle the growth and creativity.

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